discourse before the Scientific Reunion of Insbruck, on Matter, Force and the Soul:

"The French physicist, Adolphe Hirn, who, at the same time with Joule, Colding, Holtman and Hemholtz, discovered the mechanical equivalent of heat, arrived at the conclusion, which I find as beautiful as true, that there are three categories of existence; first, matter; second, force; third, the soul, or the spiritual principle. When once we have succeeded in realizing that there are not only material objects, but also forces, and forces in the definite, accurate sense of modern science, as indestructible as the substances of the chemist, we have but one step farther to take, and that perfectly natural, to recognize and admit spiritual existences. In inanimate nature we speak of atoms; in the living world we find individuals. The body of the living being, as we now know it, is not only formed of material elements, but force plays also an essential part. But neither matter nor force can think, feel and will. Man thinks. For a long time we have generally supposed that the nervous substance, and especially the brain matter, contained free phosphorus, and the imagination attributed to this *free phosphorus* an important part in intellectual operations. But new and more exact researches in organic chemistry have proved that no living organ, and of course the brain, contains free phosphorus. If, on one side, similar illusions must vanish before the data of an exact science, it is none the less true, nevertheless, that there are continually produced in the living brain, material modifications, which are, as it were, the consequences of a sort of molecular activity, and that the intellectual acts of the individual are intimately connected with this material cerebral action. But it is a great error to identify these two activities which proceed parallel to each other. An illustration will render my thought clearer. We know that there can be no telegraphic communication without a concomitant chemical action. But what the telegraph says, the contents of the despatch, could never be regarded as a function of the electro-chemical action. That is still truer for the brain and thought. The brain is only the machine, it is not thought. Intelligence, which is not a part of sensible things cannot be submitted to the investigations of the physicist and the anatomist. What is true subjectively is also true objectively. Without this harmony, eternally pre-established by God, between the subjective and objective worlds, all our thoughts would be sterile. Logic is the statics of intelligence, grammar is its mechanics, and language its dynamics. I finish in saying to you with deep conviction: an exact philosophy should and can be nothing but an introduction to the Christian religion."

NATURE.* — During the last year we expressed a very favorable opinion of "Scientific Opinion," a weekly scientific newspaper, and have now to express, after a careful reading for several months, our equally strong regard for "Nature." It is in royal 8vo form, well printed, containing excellent articles by the leading scientists of Great Britain, and much valuable weekly intelligence. Everybody who can afford to do so would do well to subscribe to it.

NATURAL HISTORY MISCELLANY.

BOTANY.

EDIBLE FUNGI. — During the last few years great attention has been paid, by botanists on the one hand and epicures on the other, to the edible qualities of certain fungi. Notwithstanding the prejudice generally entertained against this class of vegetable productions, extending in Scotland, Wales and some parts of England, even to the common mushroom,

Nature, a weekly illustrated journal of science. Royal 8vo, two columns. pp. 32. Twelve cents a number. McMillan & Co. New York, 63 Bleeker street.

there is no question that a considerable number of species, very abundant in this country, are not only wholesome, but delicious articles of diet, and are at least as easily distinguished, with a little practice, from the poisonous or suspicious species, as are berries or other wild fruits. Containing a larger portion of nitrogen than any other family of the vegetable kingdom, they furnish an abundant supply of nourishment at a period of the year when very little else is to be obtained. It is calculated that there is scarcely a parish in England where tons of wholesome food are not allowed to waste every year, to say nothing of the facilities for their artificial culture. Berkeley reckons that there are at least thirty distinct English edible fungi; Dr. Curtis has partaken of forty in North Carolina, and enumerates one hundred and eleven species in that state alone reputed to be edible. Fries, the greatest living cryptogamist, is publishing a large work on the edible and poisonous fungi of Sweden; several works of a similar character have recently been brought out in Italy; in our own country the Rev. M. J. Berkeley, Mr. Worthington G. Smith and Dr. Bull of Hereford, may be mentioned as having paid special attention to the subject. — *Quarterly Journal of Science.*

Large Trees in Australia. — On this subject the government director of the Botanic Garden at Melbourne furnishes some interesting details, as follows: — "The marvellous height of some of the Australian (and especially the Victorian) trees has become the subject of closer investigation since of late (particularly through the miner's tracks) easier access has been afforded to the back gullies of our mountain system. Some astounding data, supported by actual measurements, are now on record. The highest tree previously known was a Karri Eucalyptus (*Eucalyptus colossea*), measured by Mr. Pemberton Walcott, in one of the delightful glens of the Warren River, in Western Australia, where it rises to approximately four hundred feet high. Into the hollow trunk of this Karri, three riders, with an additional pack-horse, could enter and turn in it without dismounting. At the desire of the writer of those pages (Dr. Müller), Mr. D. Bogle measured a fallen tree of *Eucalyptus amygdalina*, in the deep recesses of Daudenong (Victoria), and obtained for it the length of four hundred and twenty feet, with proportionate width; while Mr. G. Klein took the measurement of a Eucalyptus on the Black Spur, ten miles distant from Healesville, four hundred and eighty feet high. . . . . It is not at all likely that, in these isolated inquiries, chance has led to the really highest trees, which the most secluded and the least accessible spots may still conceal. It seems, however, almost beyond dispute that the trees of Australia rival in length, though evidently not in thickness, even the renowned forest giants of California, *Sequoia Wellingtonia*, the highest of which, as far as the writer is aware, rises, in their favorite haunts at the Sierra Nevada, to about four hundred and fifty feet. . . . Thus to Victorian trees the palm must be conceded for elevation." — *Mossman's Origin of the Seasons*, p. 367. [And see more at length, "Silliman's Journal" for November, 1867, p. 422.]

TENDENCY OF FLORAL ORGANS TO EXCHANGE OFFICES. — In the November NATURALIST, p. 494, "C. J. S.," speaks of finding a little ear on the apex of a staminate spike of Indian Corn. This is something new to me; but I have several times seen staminate organs, produced on the ear.

When the rains came after the past dry summer many plants seem to have made haste to produce new organs even though out of place, rather than to go on with the development of organs formed at the natural time. This tendency gives us ears of corn on the tassel, as C. J. S. has observed, and tassels formed upon the ear and many abortive ears in a single husk, as I have observed this fall. I have noticed, also, a few heads of Timothy which, instead of producing seed, have produced a growth of little leaves, and are scarcely recognizable as Timothy-heads. — D. MILLIKIN.

MONSTROSITY IN TRILLIUM. — April 28, 1866, while botanizing at Le Roy, N. Y., I found a Trillium with two stems arising from a common rootstock, each stem bearing a flower unlike the other and neither perfect. The petals of one could hardly be distinguished from its sepals, the only perceptible difference being a minute white margin surrounding the apex of each petal. The floral envelopes in this case appear to have reverted to the form and color of the leaves much more nearly, than in the other terminal flower where the petals are oblong and pure white, having a narrow green stripe running through the centre of each. Though monstrosities among the Trilliums may not be rare, I have never seen a similar one. — C. S. OSBORNE, *Rochester, N. Y.*

NOTICES OF BOTANICAL MONSTROSITIES, such as the above, we are glad to receive from our various correspondents. But they must not be disappointed if they should not appear at once. When they have accumulated a little so as to throw interest upon each other, we will print them all, or the most interesting ones, with some remarks on their classification and bearing, as illustrated in connection with a recent work upon Vegetable Teratology, by Dr. Masters of London, published by the Ray Society. If our correspondents will send us the specimens themselves, or drawings of them, it would in many cases be advantageous. As to the monstrosity in Indian corn, the attempt to produce ears on the staminate spike is common enough; the production of male flowers on the ear is so unusual that we should be very glad to see specimens. *Chlorosis* (as it is termed) in *Trillium grandiflorum* is rather common, and we find that the plant so affected goes on year after year producing such blossoms. — EDS.

ARCTIC FLORA. — Dr. Berthold Seeman discusses in the "Journal of Botany," the question whether vegetation extends to the North Pole, supposing land exists there. He answers the question in the affirmative, maintaining that excessive cold in winter exercises but a limited influence upon a vegetation which, like the Arctic, enjoys the protection of a thick covering of snow, and is besides in a state of inactivity. The temperature of the summer during the months of July and August has by far the

greatest share in the distribution of vegetable life in the northern regions, and the lowest temperature during those months is not found in the most northerly point yet reached by any exploring expedition, but in Winter Island, on the eastern shore of the Melville Peninsula, where the mean temperature during July and August ranges between 34° and 36° F. That spot, which may be called the phytological pole, is nevertheless covered with vegetation, and knowing as we do, that plants do grow not only on a frozen soil, but even, as in Kotzebue Sound, on the tops of icebergs, there is no reason to suppose that the terrestrial pole is destitute of vegetation. The most northerly berry-bearing plant yet recorded is *Vaccinium Vitis-Idæa*, or the cranberry, gathered in Bushman Island, on the northwest shore of Greenland, by Captain W. Penny, or in latitude 76° N., and longitude 66° W. The most northerly berry-bearing genera are *Vaccinium*, *Oxycoccus*, *Rubus*, *Cornus* and *Empetrum*. It is stated that occasionally berries ripen in Lapland. —*Quarterly Journal of Science.*

[We should think so! See Linnæus's "Lapland Flora," and his interesting "Tour in Lapland." In the former almost thirty baccate-fruited plants are enumerated, and at least half of these ripen edible berries. — EDITORS.]

THE FERTILIZATION OF WINTER-FLOWERING PLANTS. — Mr. A. W. Bennett contributes to the first number of the new scientific magazine, "Nature," the results of some observations on the fertilization of those plants which habitually flower in the winter, when there are few or no insects to assist in the distribution of the pollen. He finds that in those wild plants which flower and produce seed-bearing capsules throughout the year, as the white and red dead-nettles, shepherd's purse, chickweed, groundsel, etc., the pollen is uniformly discharged in the bud before the flower opens. Many garden-plants, on the other hand, natives of warmer countries, but which still flower with us in the depth of winter, never bear fruit in this climate, and in them the pollen is not discharged till the flower is fully open. Of this class are the yellow jasmine and the *Chimonanthus fragrans*, or all-spice tree; in the latter species the arrangement of the pistil and the stamens is such as to render self-fertilization impossible. — *Quarterly Journal of Science.*

ZOOLOGY.

A RARE DUCK. — A specimen of the Brown Tree Duck, *Dendrocygna fulva*, was killed in New Orleans on the 22d of January, 1870, and presented by Mr. N. B. Moore to the Smithsonian Institution. This is the first instance on record of the occurrence of this species so far to the east, although it has been known for some time as an inhabitant of California; in the first place, from specimens found by Mr. Hanters at Fort Tejou. The species occurs sparingly throughout Mexico and Central America and the eastern parts of South America, and is said to have been found nesting near Galveston, Texas, by Mr. Dresser. ***